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Quaternary Fault and Fold Database of the United States

As of January 12, 2017, the USGS maintains a limited number of metadata fields that characterize the Quaternary faults and folds of the United States. For the most up-to-date information, please refer to the interactive fault map.

unnamed Guano Valley faults (Class A) No. 826

Last Review Date: 2002-12-04

citation for this record: **Personius, S.F., and Sawyer, T.L., compilers, 2002, Fault number 826, unnamed Guano Valley faults, in Quaternary fault and fold database of the United States: U.S. Geological Survey website, https://earthquakes.usgs.gov/hazards/qfaults, accessed 12/14/2020 03:15 PM.**

Synopsis	This group of faults includes north-striking normal faults that form a graben that confines Guano Valley in southern Oregon and northern Nevada, and a cross-cutt network of northeast-and northwest-striking intra-plateau faults in Nevada. The r bounding faults are marked by prominent 100- to 300-m-high escarpments in Mi and Pliocene volcanic and volcaniclastic sedimentary rocks; other faults are most expressed as topographic lineaments on Tertiary basalt, although Quaternary dep are juxtaposed against basalt along some of the more prominent lineaments. Som northeast-striking faults are expressed as scarps on piedmont-slope deposits in N but no fault scarps on Quaternary deposits have been described along these faults Oregon.
Name comments	These faults were originally mapped in the Guano Valley by Russell (1884 #5099 later in more detail by Walker and Repenning (1965 #3559), Pezzopane (1993 #3 and Geomatrix Consultants, Inc. (1995 #3593) in Oregon, and by Slemmons (196 #156), Bonham (1969 #2999), and Dohrenwend and Moring (1991 #281) in Nev dePolo (1998 #2845) referred to the fault along the Guano Rim in Nevada as the

	Eastern Guano Valley fault. **Fault ID:** Some of these faults are included in fault V6 of dePolo (1998 #2845).
County(s) and State(s)	LAKE COUNTY, OREGON WASHOE COUNTY, NEVADA
Physiographic province(s)	BASIN AND RANGE
Reliability of location	Good Compiled at 1:250,000 scale. *Comments:* In Oregon, location of fault traces are from 1:100,000-scale mapping Weldon and others (2002 #5648), and ORActiveFaults (http://www.oregongeology.org/arcgis/rest/services/Public/ORActiveFaults/MapS downloaded 06/02/2016) attributed to 1:250,000-scale mapping of Walker and Repenning (1965 #3559) and Sawlan and others (1995 #3502). In Nevada, locatic fault traces are from 1:250,000-scale mapping of Dohrenwend and Moring (1991 #281).
Geologic setting	These north-striking normal faults form a graben that confines Guano Valley. The range-bounding faults are marked by prominent 100- to 300-m-high escarpments Miocene and Pliocene volcanic and volcaniclastic sedimentary rocks (Walker and Repenning, 1965 #3559; Bonham, 1969 #2999; Walker and MacLeod, 1991 #364 Sawlan and others, 1995 #3502). In Nevada, the fault zone is also marked by a cr cutting network of northeast- and northwest-striking intra-plateau faults (Slemmo 1967 #156; Bonham, 1969 #2999; Dohrenwend and Moring, 1991 #281). Intra-pl faults with these orientations are mapped in Oregon (Walker and Repenning, 196 #3559), but these faults are either not shown on Quaternary fault compilations (Pezzopane, 1993 #3544; Geomatrix Consultants Inc., 1995 #3593; Madin and M 1996 #3575) or are mapped as possible Quaternary faults (Weldon and others, 20 #5648) and are not included herein.
Length (km)	53 km.
Average strike	N9°E
Sense of movement	Normal, Right lateral *Comments:* These faults are mapped as normal or high-angle faults by Walker and Repenning (1965 #3559), Slemmons (1967 #156), Bonham (1969 #2999), Dohrenwend and Moring (1991 #281), Walker and MacLeod (1991 #3646), Pezz (1993 #3544), and Sawlan and others (1995 #3502). Sawlan and others (1995 #3 describe east-stepping fault patterns that suggest a small right-lateral component in Oregon, and dePolo (1998 #2845) listed his Eastern Guano Valley fault as havi

	oblique dextral component.
Dip Direction	W; E
Paleoseismology studies	
Geomorphic expression	The Guano Valley faults are marked by prominent, 100- to 300-m-high escarpme The highest escarpment, the Guano Rim, marks the trace of the eastern fault; the Rim marks the trace of the most prominent western fault in the graben. Sawlan ar others (1995 #3502) attributed the conical shape of small alluvial fans along the Rim scarp to Quaternary displacement. No fault scarps on Quaternary deposits ha been described in Oregon, although Weldon and others (2002 #5648) describe lineaments across Quaternary deposits on 1:100,000-scale DEMs. In Nevada, deH (1998 #2845) listed his Eastern Guano Valley fault as having no fault scarps on Quaternary deposits, but several short scarps have been mapped along northeast-striking faults on piedmont-slope deposits near Rye Creek Reservoir, at the moutl Catnip Creek, along the west front of Guano Mountain and possibly southwest of Racetrack Reservoir, and Quaternary deposits are juxtaposed against basalt along of the more prominent topographic lineaments (Slemmons, 1967 #156; Dohrenwe and Moring, 1991 #281).
Age of faulted surficial deposits	The Guano Valley faults form prominent escarpments in Miocene bedrock (Walk Repenning, 1965 #3559; Walker and MacLeod, 1991 #3646), but no fault scarps Quaternary deposits have been reported along the fault traces in Oregon, and only few scarps have been described on Quaternary piedmont deposits on the floor of Guano Valley in Nevada (Slemmons, 1967 #156; Bonham, 1969 #2999; Dohrenw and Moring, 1991 #281).
Historic earthquake	
Most recent prehistoric deformation	undifferentiated Quaternary (<1.6 Ma) *Comments:* Pezzopane (1993 #3544) used airphoto analysis to infer Quaternary (- Ma) displacement, and subsequent compilations (Geomatrix Consultants Inc., 19 #3593; Madin and Mabey, 1996 #3575; Weldon and others, 2002 #5648) also infe Quaternary (<1.6–1.8 Ma) displacement on these faults in Oregon and northern Nevada. Sawlan and others (1995 #3502) describe the conical shape of small allu fans along the Guano Rim scarp in Oregon as evidence of Quaternary displaceme Reconnaissance photogeologic mapping of Dohrenwend and Moring (1991 #281) Slemmons (1967 #156) also indicates Quaternary displacement in Nevada.
Recurrence interval	

Slip-rate category	Less than 0.2 mm/yr *Comments:* Sawlan and others (1995 #3502) describe a tentative correlation of m forming basalts across the fault zone that indicate about 150 m of displacement ir last 5 Ma near Rocky Canyon in Oregon, and offsets of at least 100–300 m in Mi volcanic rocks are evident along the prominent Guano Rim. Such data indicate lo rates of long-term slip.
Date and Compiler(s)	2002 Stephen F. Personius, U.S. Geological Survey Thomas L. Sawyer, Piedmont Geosciences, Inc.
References	#2999 Bonham, H.F., 1969, Geology and mineral deposits of Washoe and Storey Counties, Nevada: Nevada Bureau of Mines and Geology Bulletin 70, 140 p., 1 p scale 1:250,000. #2845 dePolo, C.M., 1998, A reconnaissance technique for estimating the slip rat normal-slip faults in the Great Basin, and application to faults in Nevada, U.S.A.: Reno, University of Nevada, unpublished Ph.D. dissertation, 199 p. #281 Dohrenwend, J.C., and Moring, B.C., 1991, Reconnaissance photogeologic of young faults in the Vya 1° by 2° quadrangle, Nevada, Oregon, and California: Geological Survey Miscellaneous Field Studies Map MF-2174, 1 sheet, scale 1:250,000. #3593 Geomatrix Consultants, Inc., 1995, Seismic design mapping, State of Oreg Technical report to Oregon Department of Transportation, Salem, Oregon, under Contract 11688, January 1995, unpaginated, 5 pls., scale 1:1,250,000. #3575 Madin, I.P., and Mabey, M.A., 1996, Earthquake hazard maps for Oregon: of Oregon, Department of Geology and Mineral Industries Geological Map Serie GMS-100, 1 sheet. #3544 Pezzopane, S.K., 1993, Active faults and earthquake ground motions in Or Eugene, Oregon, University of Oregon, unpublished Ph.D. dissertation, 208 p. #5099 Russell, I.C., 1884, A geological reconnaissance in southern Oregon: U.S. Geological Survey Fourth Annual Report, p. 431-464. #3502 Sawlan, M.G., King, H.D., Plouff, D., and Miller, M.S., 1995, Mineral res of the Spaulding Wilderness study area, Lake and Harney Counties, Oregon: U.S Geological Survey Bulletin 1738, 18 p. #156 Slemmons, D.B., 1967, Pliocene and Quaternary crustal movements of the and-Range province, USA: Journal of Geosciences, Osaka City University, v. 10,

	91-103. #3646 Walker, G.W., and MacLeod, N.S., 1991, Geologic map of Oregon: U.S. Geological Survey, Special Geologic Map, 2 sheets, scale 1:500,000. #3559 Walker, G.W., and Repenning, C.A., 1965, Reconnaissance geologic map Adel quadrangle, Lake, Harney, and Malheur Counties, Oregon: U.S. Geological Survey Miscellaneous Geologic Investigations I-446, 1 sheet, scale 1:250,000. #5648 Weldon, R.J., Fletcher, D.K., Weldon, E.M., Scharer, K.M., and McCrory, 2002, An update of Quaternary faults of central and eastern Oregon: U.S. Geolog Survey Open-File Report 02-301 (CD-ROM), 26 sheets, scale 1:100,000.